**Exhibit A**
**SCOPE OF WORK**
Natural Gas Pipeline Sensors

## TECHNICAL TASK LIST

| Task # | CPR | Task Name |
|---|---|---|
| 1 | N/A | Administration |
| 2 | | Benchmark Existing Diagnostic Approaches |
| 3 | | Design Gas Pipeline Sensors |
| 4 | | Fabricate and Demonstrate Gas Pipeline Sensor Prototypes |
| 5 | | Lab Test Gas Pipeline Sensor Prototypes |
| 6 | | Field Test Gas Pipeline Sensor Prototypes |
| 7 | | Analyze Data from Field Test |

## KEY NAME LIST

| Task # | Key Personnel | Key Subcontractor(s) | Key Partner(s) |
|---|---|---|---|
| 1 | Gaymond Yee, CIEE, Paul Wright, CITRIS | | |
| 2 | CIEE, CITRIS | | |
| 3 | CIEE, CITRIS | | |
| 4 | CIEE, CITRIS | | |
| 5 | CIEE, CITRIS | | |
| 6 | CIEE, CITRIS | | |
| 7 | CIEE, CITRIS | | |

## GLOSSARY

*Specific terms and acronyms used throughout this work statement are defined as follows:*

| Acronym | Definition |
|---|---|
| 3D | Three Dimensional |
| CPR | Critical Project Review |
| CPUC | California Public Utilities Commission |
| Energy Commission | California Energy Commission |
| GIS | Geographic Information System |
| MEMS | Micro-Electro-Mechanical System |
| PAC | Project Advisory Committee |

| Acronym | Definition |
|---|---|
| PIER | Public Interest Energy Research |
| UCC.1 | Uniform Commercial Code (Financing Statement) |
| USB | Universal Serial Bus |

**Problem Statement**

The State's natural gas supply is conveyed through a complex system of pipelines that run throughout the state, including underneath areas of high population. The safety and security of the natural gas system are important priorities for California, especially the prevention of catastrophic events on the natural gas pipeline. In the interest of enhancing the safety and operation of the overall natural gas pipeline system, public interest research is needed to explore issues related to natural gas pipeline integrity and safety.

Natural gas pipelines are routinely inspected for corrosion and defects in an effort to ensure pipeline safety and integrity. Inspections are conducted using various techniques, including: 1) direct assessment - physically going to the section of pipeline and inspecting it in person or through satellite surveillance; 2) hydrostatic assessment - demonstrating the integrity of a section of pipeline by increasing gas flows and pressure beyond its normal operation; and/or 3) technologies such as "Smart Pigs" - intelligent robotic devices that are propelled down pipelines to evaluate the interior of the pipe. Each of these methods has limitations due to cost or because they require operational changes or interruptions.

**Goals of the Agreement**

The goal of the project is to develop prototypes of next generation low cost sensors that have the potential to significantly improve the safety and security of natural gas pipelines, without impacting operations.

Some characteristics of the next generation sensors are:

- Low cost sensors that result in more widespread deployment, giving operators more situational awareness of the gas pipeline system resulting in increased accident avoidance.

- Sensors that monitor and inspect pipelines without disrupting service leading to better operational margins for the utility and more reliable service to the customers. As a result, inspections can be carried out more often and more timely condition-based maintenance can be performed.

- Computer-based sensors that can communicate measured data in electronic format that can be stored and archived. The stored data can be use for audit

purposes as well as for data analyses that may lead to early forecasting of imminent failures.

**Objectives of the Agreement**

The objective of this project is the design, fabrication, lab testing, and field testing of three next generation low-cost sensor packages for use in gas pipelines. The three sensor package types are:

- Gas pressure sensor that monitors the pipeline for over-pressure conditions.
- Laser-based sensor to detect defects in pipeline welds from the inside.
- Water accumulation and corrosion sensor.

Each of these sensor types will have these characteristics:

- Micro-Electro-Mechanical System (MEMS) based such that low-cost "chip" fabrication techniques can be applied to the manufacturing of the sensors.
- Integrated low-power radios such that the installed sensors can communicate wirelessly on a network, resulting in dramatically lower installation costs.
- Integration with a 3D Geographic Information System (GIS) framework provides better situational awareness to operators using advanced interactive visual user interfaces. In addition, the GIS information will support condition-based monitoring and decision making for the oversight of natural gas lines.

These prototypes will be able to operate inside regular gas-lines during normal operations to monitor pipeline "health." Typically the sensors will be inspecting for over-pressuring, quality of original welds, weld-performance, water build up, and corrosion patches that could lead to damage, leaks and other safety related problems. The performance of the new sensors will be benchmarked and compared to existing diagnostic equipment.

## TASK 1.0 ADMINISTRATION

### MEETINGS

**Task 1.1 Attend Kick-off Meeting**
The goal of this task is to establish the lines of communication and procedures for implementing this Agreement.

**The Contractor shall:**

- Attend a "kick-off" meeting with the Commission Contract Manager, the Contracts Officer, and a representative of the Accounting Office. The Contractor shall bring their Project Manager, Contracts Administrator, Accounting Officer, and others

designated by the Commission Contract Manager to this meeting. The administrative and technical aspects of this Agreement will be discussed at the meeting. Prior to the kick-off meeting, the Commission Contract Manager will provide an agenda to all potential meeting participants.

The administrative portion of the meeting shall include, but not be limited to, the following:

- Terms and conditions of the Agreement
- CPRs (Task 1.2)
- Match fund documentation (Task 1.7)
- Permit documentation (Task 1.8)

The technical portion of the meeting shall include, but not be limited to, the following:

- The Commission Contract Manager's expectations for accomplishing tasks described in the Scope of Work;
- An updated Schedule of Deliverables
- Progress Reports (Task 1.4)
- Technical Deliverables (Task 1.5)
- Final Report (Task 1.6)

The Commission Contract Manager shall designate the date and location of this meeting.

**Contractor Deliverables:**

- An Updated Schedule of Deliverables
- An Updated Gantt Chart (if included)
- An Updated List of Match Funds
- An Updated List of Permits

**Commission Contract Manager Deliverables:**

- Final Report Instructions

**Task 1.2 CPR Meetings**

The goal of this task is to determine if the project should continue to receive Energy Commission funding to complete this Agreement and if it should, are there any modifications that need to be made to the tasks, deliverables, schedule or budget.

CPRs provide the opportunity for frank discussions between the Energy Commission and the Contractor. CPRs generally take place at key, predetermined points in the Agreement, as determined by the Commission Contract Manager and as shown in the Technical Task List above and in the Schedule of Deliverables. However, the Commission Contract Manager may schedule additional CPRs as necessary, and, if necessary, the budget will be reallocated to cover the additional costs borne by the Contractor, but the overall contract amount will not increase.

Participants include the Commission Contract Manager and the Contractor, and may include the Commission Contracts Officer, the PIER Program Team Lead, other Energy Commission staff and Management as well as other individuals selected by the Commission Contract Manager to provide support to the Energy Commission.

**The Commission Contract Manager shall:**

- Determine the location, date and time of each CPR meeting with the Contractor. These meetings generally take place at the Energy Commission, but they may take place at another location.

- Send the Contractor the agenda and a list of expected participants in advance of each CPR. If applicable, the agenda shall include a discussion on both match funding and permits.

- Conduct and make a record of each CPR meeting. One of the outcomes of this meeting will be a schedule for providing the written determination described below.

- Determine whether to continue the project, and if continuing, whether or not to modify the tasks, schedule, deliverables and budget for the remainder of the Agreement, including not proceeding with one or more tasks. If the Commission Contract Manager concludes that the project needs a formal amendment or that satisfactory progress is not being made and the project needs to be ended, these conclusions will be referred to the Commission's Research, Development and Demonstration Policy Committee for its concurrence.

- Provide the Contractor with a written determination in accordance with the schedule. The written response may include a requirement for the Contractor to revise one or more deliverable(s) that were included in the CPR.

**The Contractor shall:**

- Prepare a CPR Report for each CPR that discusses the progress of the Agreement toward achieving its goals and objectives. This report shall include recommendations and conclusions regarding continued work of the projects. This report shall be submitted along with any other deliverables identified in this Scope of Work. Submit these documents to the Commission Contract Manager and any other designated reviewers at least 15 working days in advance of each CPR meeting.

- Present the required information at each CPR meeting and participate in a discussion about the Agreement.

**Contractor Deliverables:**

- CPR Report(s)
- CPR deliverables identified in the Scope of Work

**Commission Contract Manager Deliverables:**
- Agenda and a List of Expected Participants
- Schedule for Written Determination
- Written Determination

**Task 1.3 Final Meeting**
The goal of this task is to closeout this Agreement.

**The Contractor shall:**

- Meet with the Energy Commission to present the findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement.

  This meeting will be attended by, at a minimum, the Contractor, the Commission Contracts Officer, and the Commission Contract Manager. The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the Commission Contract Manager.

  The technical portion of the meeting shall present findings, conclusions, and recommended next steps (if any) for the Agreement. The Commission Contract Manager will determine the appropriate meeting participants.

  The administrative portion of the meeting shall be a discussion with the Commission Contract Manager and the Contracts Officer about the following Agreement closeout items:

  - What to do with any state-owned equipment (Options)
  - Need to file UCC.1 form re: Energy Commission's interest in patented technology
  - Energy Commission's request for specific "generated" data (not already provided in Agreement deliverables)
  - Need to document Contractor's disclosure of "subject inventions" developed under the Agreement
  - "Surviving" Agreement provisions, such as repayment provisions and confidential deliverables
  - Final invoicing and release of retention

- Prepare a schedule for completing the closeout activities for this Agreement.

**Deliverables:**
- Written documentation of meeting agreements and all pertinent information
- Schedule for completing closeout activities

**REPORTING**

**See Exhibit D, Reports/Deliverables/Records.**

**Task 1.4 Quarterly Progress Reports**
The goal of this task is to periodically verify that satisfactory and continued progress is made towards achieving the research objectives of this Agreement.

**The Contractor shall:**

- Prepare progress reports which summarize all Agreement activities conducted by the Contractor for the reporting period, including an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Each progress report is due to the Commission Contract Manager within 10 working days after the end of the reporting period. Attachment A-2, Progress Report Format, provides the recommended specifications.

**Deliverables**:
- Quarterly Progress Reports

**Task 1.5 Test Plans, Technical Reports and Interim Deliverables**
The goal of this task is to set forth the general requirements for submitting test plans, technical reports and other interim deliverables, unless described differently in the Technical Tasks. When creating these deliverables, the Contractor shall use and follow, unless otherwise instructed in writing by the Commission Contract Manager, the latest version of the PIER Style Manual published on the Energy Commission's web site:

http://www.energy.ca.gov/contracts/pier/contractors/index.html

**The Contractor shall:**

- Unless otherwise directed in this Scope of Work, submit a draft of each deliverable listed in the Technical Tasks to the Commission Contract Manager for review and comment in accordance with the approved Schedule of Deliverables. The Commission Contract Manager will provide written comments back to the Contractor on the draft deliverable within 10 working days of receipt. Once agreement has been reached on the draft, the Contractor shall submit the final deliverable to the Commission Contract Manager. The Commission Contract Manager shall provide written approval of the final deliverable within 5 working days of receipt. Key elements from this deliverable shall be included in the Final Report for this project.

**Task 1.6 Final Report**
The goal of this task is to prepare a comprehensive written Final Report that describes the original purpose, approach, results and conclusions of the work done under this Agreement. The Commission Contract Manager will review and approve the Final Report. The Final Report must be completed on or before the termination date of

the Agreement. When creating these deliverables, the Contractor shall use and follow, unless otherwise instructed in writing by the Commission Contract Manager, the latest version of the PIER Style Manual published on the Energy Commission's web site:

http://www.energy.ca.gov/contracts/pier/contractors/index.html

The Final Report shall be a public document. If the Contractor has obtained confidential status from the Energy Commission and will be preparing a confidential version of the Final Report as well, the Contractor shall perform the following subtasks for both the public and confidential versions of the Final Report.

**Task 1.6.1 Final Report Outline**

**The Contractor shall:**

- Prepare a draft outline of the Final Report.

- Submit the draft outline of Final Report to the Commission Contract Manager for review and approval. The Commission Contract Manager will provide written comments back to the Contractor on the draft outline within 10 working days of receipt. Once agreement has been reached on the draft, the Contractor shall submit the final outline to the Commission Contract Manager. The Commission Contract Manager shall provide written approval of the final outline within 5 working days of receipt.

**Deliverables:**
- Draft Outline of the Final Report
- Final Outline of the Final Report

**Task 1.6.2 Final Report**

**The Contractor shall:**

- Prepare the draft Final Report for this Agreement in accordance with the approved outline.

- Submit the draft Final Report to the Commission Contract Manager for review and comment. The Commission Contract Manager will provide written comments within 10 working days of receipt.

  Once agreement on the draft Final Report has been reached, the Commission Contract Manager shall forward the electronic version of this report for Energy Commission internal approval. Once the approval is given, the Commission Contract Manager shall provide written approval to the Contractor within 5 working days.

- Submit one bound copy of the Final Report with the final invoice.

**Deliverables**:
- Draft Final Report
- Final Report

**MATCH FUNDS, PERMITS, AND ELECTRONIC FILE FORMAT**

**Task 1.7 Identify and Obtain Matching Funds**
The goal of this task is to ensure that the match funds planned for this Agreement are obtained for and applied to this Agreement during the term of this Agreement.

The costs to obtain and document match fund commitments are not reimbursable through this Agreement. While the PIER budget for this task will be zero dollars, the Contractor may utilize match funds for this task. Match funds shall be spent concurrently or in advance of PIER funds during the term of this Agreement. Match funds must be identified in writing, and the associated commitments obtained before the Contractor can incur any costs for which the Contractor will request reimbursement.

**The Contractor shall:**

- Prepare a letter documenting the match funding committed to this Agreement and submit it to the Commission Contract Manager at least 2 working days prior to the kick-off meeting:

    1. If no match funds were part of the proposal that led to the Energy Commission awarding this Agreement and none have been identified at the time this Agreement starts, then state such in the letter.

    2. If match funds were a part of the proposal that led to the Energy Commission awarding this Agreement, then provide in the letter:

        - A list of the match funds that identifies the:
            - Amount of each cash match fund, its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied.

            - Amount of each in-kind contribution, a description, documented market or book value, and its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Contractor shall identify its owner and provide a contact name, address and telephone number, and the address where the property is located.

        - A copy of the letter of commitment from an authorized representative of

each source of cash match funding or in-kind contributions that these funds or contributions have been secured.

- Discuss match funds and the implications to the Agreement if they are significantly reduced or not obtained as committed, at the kick-off meeting. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.

- Provide the appropriate information to the Commission Contract Manager if during the course of the Agreement additional match funds are received.

- Notify the Commission Contract Manager within 10 working days if during the course of the Agreement existing match funds are reduced. Reduction in match funds may trigger an additional CPR.

**Deliverables:**
- A letter regarding Match Funds or stating that no Match Funds are provided
- Letter(s) for New Match Funds
- A copy of each Match Fund commitment letter
- Letter that Match Funds were Reduced (if applicable)

**Task 1.8 Identify and Obtain Required Permits**
The goal of this task is to obtain all permits required for work completed under this Agreement in advance of the date they are needed to keep the Agreement schedule on track.

Permit costs and the expenses associated with obtaining permits are reimbursable under this Agreement. Permits must be identified in writing before the Contractor can incur any costs related to the use of the permit(s) for which the Contractor will request reimbursement.

**The Contractor shall:**

- Prepare a letter documenting the permits required to conduct this Agreement and submit it to the Commission Contract Manager at least 2 working days prior to the kick-off meeting:

    1. If there are no permits required at the start of this Agreement, then state such in the letter.

    2. If it is known at the beginning of the Agreement that permits will be required during the course of the Agreement, provide in the letter:

        - A list of the permits that identifies the:
            - Type of permit
            - Name, address and telephone number of the permitting jurisdictions or

lead agencies
    - Schedule the Contractor will follow in applying for and obtaining these permits.

- The list of permits and the schedule for obtaining them will be discussed at the kick-off meeting, and a timetable for submitting the updated list, schedule and the copies of the permits will be developed. The implications to the Agreement if the permits are not obtained in a timely fashion or are denied will also be discussed. If applicable, permits will be included as a line item in the progress reports and will be a topic at CPR meetings.

- If during the course of the Agreement additional permits become necessary, then provide the appropriate information on each permit and an updated schedule to the Commission Contract Manager.

- As permits are obtained, send a copy of each approved permit to the Commission Contract Manager.

- If during the course of the Agreement permits are not obtained on time or are denied, notify the Commission Contract Manager within 5 working days. Either of these events may trigger an additional CPR.

**Deliverables:**
- A letter documenting the Permits or stating that no Permits are required
- Updated list of Permits as they change during the Term of the Agreement
- Updated schedule for acquiring Permits as it changes during the Term of the Agreement
- A copy of each approved Permit

**Task 1.9 Electronic File Format**
The goal of this task is to unify the formats of electronic data and documents provided to the Energy Commission as contract deliverables. Another goal is to establish the computer platforms, operating systems and software that will be required to review and approve all software deliverables.

**The Contractor shall:**

- Deliver documents to the Commission Contract Manager in the following formats:
    - Data sets shall be in Microsoft (MS) Access or MS Excel file format.
    - PC-based text documents shall be in MS Word file format.
    - Documents intended for public distribution shall be in PDF file format, with the native file format provided as well.
    - Project management documents shall be in MS Project file format.

- Request exemptions to the electronic file format in writing at least 90 days before the deliverable is submitted.

**Deliverables:**
- A letter requesting exemption from the Electronic File Format (if applicable)

## TECHNICAL TASKS

### Task 2 Benchmark Existing Diagnostic Approaches

The goal of this task is to benchmark existing diagnostic approaches to measuring pressure, detecting welding defects, and detecting water accumulation and corrosion in natural gas pipelines. Commercial off-the-shelf products will be used for the benchmarking. The research team will solicit assistance from local gas utilities for either the use of loaned equipment or access to installed equipment.

A set of benchmarking metrics shall be developed and existing equipment shall be benchmarked against those metrics. The same metrics shall be used to benchmark new sensors being developed by this project. The "before" and "after" benchmarks can be used to compare performance of the new sensors with that of existing technology.

**The Contractor shall:**
- Solicit assistance from local gas utilities for access to existing pipeline diagnostic equipment.
- Develop a set of parameters that will be used to benchmark existing pipeline diagnostic equipment.
- Test, evaluate, and benchmark existing pipeline diagnostic equipment.
- Prepare a Benchmark Report that provides metrics for existing commercial off-the-shelf product effectiveness at measuring pressure, detecting weld defects, and detecting water accumulation and corrosion.

**Deliverables:**
- Benchmark Report (no draft)

### Task 3 Design Gas Pipeline Sensors

The goal of this task is to design three next generation gas pipeline sensors:

- Gas pressure sensor that monitors the pipeline for over-pressure conditions.
- Laser-based sensor to detect defects in pipeline welds from the inside.
- Water accumulation and corrosion sensor.

**Gas pressure sensor**. The gas pressure sensor is a small MEMS platform – about the size of today's Universal Serial Bus (USB) memory sticks - that would be installed in numerous locations on the inside-wall of a pipe. The package contains a MEMS pressure sensor that has been successfully manufactured in recent years and in

volume, costing only a few dollars. The package also contains a communicating radio chip (or mote). This small radio sends the pressure reading to a remote receiving station. The MEMS sensor and radio will be powered by radio-frequency energy sent from the base-station, and a local rechargeable battery will provide local storage-power. Experiments (field testing) will determine the practical specification for spacing between the MEMS platforms and the reader, and the optimal spacing between each sensor to ensure accurate pressure readings at regions over the whole pipe.

**Weld defect sensor**. This sensor will employ a technique to generate ultrasonic waves on the inside surface of the pipe by bombarding the surface with a modulated laser beam. The ultrasonic waves propagate into the pipe material and reflect back at discontinuities such as voids and defects, and at the outside of the pipe. A second laser beam detects induced surface motion from reflected waves. A computer system produces and displays surface and internal contours, and properties of the pipe being inspected. The system would be used inside pressurized gas pipelines, moving along the inside of the pipe (as a "crawler") to inspect welds in the pipe wall.

**Water accumulation and corrosion sensor**. This sensor has different characteristics depending on the materials used in its construction. As a water accumulation sensor, it is built with layers of Aluminum Oxide Platinum. A sensor to detect possible corrosion development is built with layers of Aluminum Oxide Iron. For detecting water accumulation, the sensor will be installed permanently at strategic low points in the pipeline. Using multiple stacked layers of Aluminum Oxide Platinum, the output of the sensor can indicate the level of water accumulation. For detecting possible corrosion buildup, sensors will be installed permanently and randomly along the length of the pipeline. The output of the sensor can indicate the magnitude of corrosion. Although this sensor does not detect actual corrosion in the pipe material, it will detect corrosion build-up resulting from the presence of moisture. Both sensor types will have a communicating radio chip for transmitting readings.

**The Contractor shall:**

- Design three types of sensor packages: gas pressure, weld defect, and water accumulation and corrosion.
- Prepare specifications, schematics, and design drawings.
- Prepare a Design Report that specifies the schematics of the gas pressure sensor, weld defect sensor, and water accumulation and corrosion sensor.

**Deliverables:**

- Design Report (no draft)

### Task 4 Fabricate and Demonstrate Gas Pipeline Sensor Prototypes

The goal of this task is to fabricate and demonstrate prototypes of the sensors designed in Task 3. A family of sensor packages will be fabricated using the MEMS-prototyping, rapid-prototyping, and manufacturing equipment available in the research team's

facilities. These packaged sensor systems will be able to communicate in a sensor-net with each other and with the outside world. The sensor-net will also be integrated into a 3D GIS framework. A GIS framework will allow data visualization with highly interactive user interface and integration to physical infrastructure data models with financial and condition information. The 3D-GIS database will support condition-based-monitoring and decision-making for the oversight of the natural gas lines. The completed integrated prototypes will be demonstrated to the Commission Contract Manager and other interested parties determined by the Commission Contract Manager.

**The Contractor shall:**

- Fabricate prototypes of the three sensor types using the designs developed in Task 5.
- Integrate the sensors with an appropriate 3D GIS framework.
- Develop database to support condition-based-monitoring and decision-making
- Make videos of the working prototypes.
- Organize and conduct a workshop to demonstrate the prototypes to the Commission Contract Manager and other interested parties as appropriate.
- Prepare presentation materials for the demonstration workshop. Materials include but are not limited to PowerPoint presentations.

**Deliverables:**

- Workshop presentation materials (no draft)

### Task 5 Lab Test Gas Pipeline Sensor Prototypes

The goal of this task is to lab test the prototype sensors. The lab testing will be an opportunity to fine tune the operational characteristics of the prototype sensors such as calibrations and best distance for communications between adjacent sensor packages, as well as to establish baseline performance metrics.

**The Contractor shall:**

- Lab test the sensor prototypes.
- Determine operational characteristics such as calibrations and optimal communications distances.
- Establish baseline performance metrics.
- Prepare lab test report that includes the operational characteristics of the prototype sensors, such as calibrations.

**Deliverables:**

- Lab test report (no draft)

### Task 6 Field Test Gas Pipeline Sensor Prototypes

The goal of this task is to field test the prototype sensors. Field testing will be coordinated with a collaborating local gas utility. The location of testing can either be in an actual operating pipeline or in a utility test facility with test pipelines that can operate with real operational parameters. Field testing will last between 2-3 months. Data will be collected for analysis in Task 7.

**The Contractor shall:**

- Coordinate with collaborating local gas utility access to either operational gas pipeline or gas pipeline in a test facility.
- Conduct field test for 2-3 months.
- Collect measurement data from the field test.
- Prepare report on field test.

**Deliverables:**

- Field test report (no draft)

### Task 7 Analyze Data from Field Test

The goal of this task is to analyze the data collected in the field test (Task 6). For each of the sensor types, the analysis will include but not be limited to:

- Sensitivity of the sensors relative to the operational parameters of the pipeline.
- Accuracy and reliability of the sensors.
- Performance of the sensors as compared to existing technologies using the benchmark parameters established in Task 2.

**The Contractor shall:**

- Analyze data collected from the field test in Task 6.
- Determine parameters such as sensitivity, accuracy, and reliability.
- Determine performance as compared to existing technologies using benchmark parameters developed in Task 2.
- Prepare data analysis report of the data collected in the field test. Data will include sensitivity measurements, accuracy and reliability, and performance.

**Deliverables:**

- Data analysis report (no draft)